

IN THE CLAIMS

The following is a complete listing of claims with a status identifier in parenthesis.

LISTING OF CLAIMS

1. (Currently Amended) A method for use in providing Internet service to an endpoint, the method comprising the steps of:

specifying routing information for an endpoint using a device that is a part of a cable television network (CATV), wherein the routing information specifies a primary and alternative Internet Protocol (IP) addresses; and

communicating data to the endpoint using the specified primary IP address except during periods of service interruption in which one of the alternative IP addresses [[are]] is used by,

translating an identifier associated with the primary IP address to a tunnel interface identifier associated with the alternate IP address and

establishing an IP tunnel to the endpoint using one of the identifier associated with the alternative IP addresses.

2. (Cancelled)

3. (Cancelled)

4. (Currently Amended) A method for use in providing Internet service to an endpoint via a primary communications channel, the method comprising the steps of:

storing a routing table comprising a first Internet Protocol (IP) address associated with routing data to an endpoint via the primary communications channel and a second IP address associated with routing data to the endpoint over a secondary communications channel; and

routing data to the endpoint as a function of the routing table, such that during periods of service interruption on the primary communications channel data is routed to the endpoint via the secondary communications channel by translating an identifier associated with the first IP address to a tunnel interface identifier associated with the second IP address and establishing an IP tunnel to the endpoint using the tunnel interface identifier associated with the second IP address,

whereas data is routed to the endpoint via the primary communications channel otherwise.

5. (Cancelled)

6. (Cancelled)

7. (Previously Presented) A method of communicating over a cable television (CATV) access network having a cable modem termination system (CMTS) interface, the method comprising the steps of:

establishing a connection between the CMTS and a distant cable modem (CM) logically derived from an Internet Service Provider (ISP) subnetwork identifier of a Network Access Server (NAS) of the ISP;

storing routing information associated with the connection, the routing information including at least a CM identifier, an identity of an RF link on the CATV access network over which the CMTS forwards data packets to the CM, and a tunnel interface identifier over which the CMTS forwards data packets to the CM over a different network; and

communicating data packets to the CM by translating the CM identifier to either the identified RF link or the tunnel interface identifier, wherein the tunnel is invoked in the event of a CATV interface failure.

8. (Original) The method of claim 7 wherein CATV access network provides one-way, or downstream, communications to the CM.

9. (Original) The method of claim 7 wherein CATV access network provides two-way communications to the CM.

10. (Original) The method of claim 7 wherein the CM identifier over the CATV network is logically derived from a CMTS subnetwork identifier of the CMTS.

11. (Cancelled)

12. (Currently Amended) Apparatus for use in providing Internet service to an endpoint, the apparatus comprising:

a device, that is a part of a cable television network (CATV), for (a) specifying routing information for an endpoint, wherein the routing information specifies a primary and alternative Internet Protocol (IP) addresses, and (b) communicating data to the endpoint using the specified primary IP address except during periods of service interruption in which one of the alternative IP addresses [[are]] is used by (c) translating an identifier associated with the primary IP address to a tunnel interface identifier associated with the alternate IP address and establishing an IP tunnel to the endpoint using the tunnel interface identifier associated with the [[an]] alternative IP address.

13. (Cancelled)

14. (Currently Amended) Apparatus for use in providing Internet service to an endpoint, the apparatus comprising:

a device, ~~that is a part of a cable television network (CATV)~~, for routing data to the endpoint as a function of a routing table stored therein, such that during periods of service interruption on a primary communications channel associated with a primary IP address, data is routed to the endpoint via a secondary communications channel associated with a secondary IP address by translating an identifier associated with the primary IP address to a tunnel interface identifier associated with the secondary IP address and establishing an IP tunnel to the endpoint using the tunnel interface identifier associated with the secondary IP address, whereas data is routed to the endpoint via the primary communications channel otherwise.

15. (Cancelled)

16. (Currently Amended) A system for use in providing Internet service, the system comprising:

a cable head-end router for providing Internet Protocol (IP) packets intended for subsequent conveyance over a primary channel; and

a cable modem data termination system responsive to the provided IP packets for routing the IP packets to an endpoint as a function of a routing table stored therein such that during periods of service interruption on the primary communications channel the IP packets are routed to the endpoint via a secondary communications channel associated with a secondary IP address by translating an identifier associated with the primary communications channel to a tunnel interface identifier associated with the secondary IP address and establishing an IP tunnel to the endpoint using the tunnel interface identifier associated with the secondary IP address, whereas the IP packets are routed to the endpoint via the primary communications channel associated with a primary IP address otherwise.

17. (Currently Amended) A system for use in providing Internet service, the system comprising:

a cable head-end router for providing Internet Protocol (IP) packets that include a destination field having a value associated with a first IP address; and

a cable modem data termination system responsive to the provided IP packets for communicating the IP packets to the endpoint using the first IP address except during periods of service interruption in which an alternative IP address is used by translating an identifier associated with the first IP address to a tunnel interface identifier associated with the alternative IP address and establishing an IP tunnel to the endpoint using the identifier associated with the alternative IP address.

18. (Currently Amended) A method for use in providing Internet service to an endpoint, the method comprising the steps of:

specifying routing information for an endpoint, wherein the routing information specifies a primary and alternative Internet Protocol (IP) addresses; and

communicating data to the endpoint using the specified primary IP address over a first cable-based communications channel except during periods of service interruption in which ~~one~~~~of~~ the alternative IP addresses ~~[[are]]~~ is used for communicating over a second non-cable-based communications channel by translating an identifier associated with the primary IP address to a tunnel interface identifier associated with the alternative IP address and establishing an IP tunnel to the endpoint using the tunnel interface identifier associated with one of the alternative IP addresses over the non-cable channel.

19. (Cancelled)

20. (Currently Amended) A method for use in providing Internet service to an endpoint via a primary communications channel, the method comprising the steps of:

storing a routing table comprising an first-Internet Protocol (IP) address associated with routing data to an endpoint via the primary communications channel and a second IP address associated with routing data to the endpoint over a secondary communications channel; and

routing data to the endpoint as a function of the routing table such that during periods of service interruption on the primary communications channel data is routed to the endpoint via the secondary communications channel by translating an identifier associated with the first IP address to a tunnel interface identifier associated with the second IP address and establishing an IP tunnel to the endpoint using the identifier associated with the second IP address, whereas data is routed to the endpoint via the primary communications channel otherwise and wherein the primary communications channel and the secondary communications channel are supported by physically different communications mediums.

21. (Cancelled)

22. (Previously Presented) A method of communicating over a cable television (CATV) access network having a cable modem termination system (CMTS) interface, the method comprising the steps of:

establishing a connection between the CMTS and a distant cable modem (CM) logically derived from an Internet Service Provider (ISP) subnetwork identifier of a Network Access Server (NAS) of the ISP;

storing routing information associated with the connection, the routing information including at least a CM identifier, an identity of an RF link on the CATV access network over which the CMTS forwards data packets to the CM, and a tunnel interface identifier over which the CMTS forwards data packets to the CM over a switched telephone network; and

communicating data packets to the CM by translating the CM identifier to either the identified RF link or the tunnel interface identifier, wherein the tunnel is invoked in the event of a CATV interface failure.

23. (Previously Presented) The method of claim 22 wherein CATV access network provides one-way, or downstream, communications to the CM.

24. (Previously Presented) The method of claim 22 wherein CATV access network provides two-way communications to the CM.

25. (Previously Presented) The method of claim 22 wherein the CM identifier over the CATV network is logically derived from a CMTS subnetwork identifier of the CMTS.

26. (Cancelled)

27. (Currently Amended) Apparatus for use in providing Internet service to an endpoint, the apparatus comprising:

a device, ~~that is part of a cable television network (CATV)~~, for (a) specifying routing information for an endpoint, wherein the routing information specifies a primary and alternative Internet Protocol (IP) addresses, and (b) communicating data to the endpoint using the specified primary IP address over a first cable-based channel except during periods of service interruption in which ~~one~~ of the alternative IP addresses [[are]] is used for communicating data over a second non-cable-based communications channel by (c) translating an identifier associated with the primary IP address to a tunnel interface identifier associated with the alternative IP address and establishing an IP tunnel to the endpoint using the tunnel interface identifier associated with the [[an]] alternative IP address over the non-cable channel.

28. (Cancelled)

29. (Currently Amended) Apparatus for use in providing Internet service to an endpoint, the apparatus comprising:

a device, that is part of a cable television network (CATV), for routing data to the endpoint as a function of a routing table stored therein, such that during periods of service interruption on a primary communications channel associated with a primary IP address, data is routed to the endpoint via a secondary communications channel associated with a secondary IP address by translating an identifier associated with the primary IP address to a tunnel interface identifier associated with the secondary IP address and establishing an IP tunnel to the endpoint using the tunnel interface identifier associated with the secondary IP address, whereas data is routed to the endpoint via the primary communications channel otherwise and wherein the primary communications channel is physically different from the secondary communications channel.

30. (Cancelled)

31. (Currently Amended) A system for use in providing Internet service, the system comprising:

a cable head-end router for providing Internet Protocol (IP) packets intended for subsequent conveyance over a primary cable channel; and

a cable modem data termination system responsive to the provided IP packets for routing the IP packets to an endpoint as a function of a routing table stored therein such that during periods of service interruption on the primary cable channel the IP packets are routed to the endpoint via a secondary non-cable communications channel associated with a secondary IP address by translating an identifier

associated with the primary cable channel to a tunnel interface identifier associated with the secondary IP address and secondary non-cable communications channel and establishing an IP tunnel to the endpoint using the tunnel interface identifier associated with the secondary IP address, whereas the IP packets are routed to the endpoint via the primary cable channel associated with a primary IP address otherwise.

32. (Currently Amended) A system for use in providing Internet service, the system comprising:

a cable head-end router for providing Internet Protocol (IP) packets that include a destination field having a value associated with a first IP address; and

a cable modem data termination system responsive to the provided IP packets for communicating the IP packets to the endpoint over a cable-based communications channel using the first IP address except during periods of service interruption in which an alternative IP address is used for communicating the IP packets to the endpoint over a non-cable-based communications channel by translating an identifier associated with the first IP address to a tunnel interface identifier associated with the alternative IP address and establishing an IP tunnel to the endpoint using the tunnel interface identifier associated with the [[an]] alternative IP address over the non-cable channel.